

Notes on the History of the

ELROD

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BENJAMIN S. ELROD was born at Elrod, Ripley County, Indiana, on July 31, 1872. In 1893 he started work as a linotype operator, and was so employed until 1897 when he established in Omaha the first linotype trade shop west of the Mississippi. He was always actively interested in machine improvements and for a period of five years set Union Pacific Railroad tariffs on the linotype.

In 1917 Elrod became interested in printers' strip material. He conceived the idea of forming a continuous strip of metal from a crucible through a die, or mold, the metal being cooled and solidified as it passed through the mold. If air could be entirely excluded from the mold, he reasoned, the resulting slug would be exceedingly solid and free from air bubbles.

At a nominal expense for machine work and parts, Elrod had a mold made and attached it to a linotype crucible. Into the outer end of this mold he inserted a type metal slug. Pulling this out with a pair of pliers, a strip several inches long was drawn from the mold,

which was cooled to some extent by packing pieces of ice around its front end. This experiment led Elrod to believe that type metal could be pulled from a mold in a continuous strip.

He then took his idea to a machine shop and had patterns and castings made for a metal crucible. These castings were machined into a working model, with which Elrod pulled several feet of material, proving to him beyond a question of doubt that his idea was sound. He then built the first experimental machine around the crucible. With the proceeds from the sale to printers and newspapers of strip material which he produced with this machine, he was able to finance further experiments.

As further progress was made, Elrod succeeded in interesting a modest amount of capital to further develop the enterprise. At first 6-point material was made, and next 3-point. Elrod said that only after two years' work, night and day, could he produce usable 2-point material. During this period, Elrod conceived the happy idea of flowing molten type metal from the crucible into the space between the mold and its housing in order to effect an air-tight sealing in of the mold.

About 1919 Elrod acquired a small factory and began to manufacture machines for sale to the trade. The first Elrod strip caster sold went into a plant in Omaha which manufactured strip material for sale to printers. Soon

thereafter, two machines were sold to the Omaha *World-Herald*.

Elrod's commercial relations with the Ludlow Typograph Company had always been friendly and in 1920 he came to Mr. William A. Reade, then President of the Ludlow organization, to discuss developments in the strip casting field, as he had learned that the Ludlow Company was experimenting with a slug and rule caster of its own design. Elrod was shown the machine which the Ludlow Company had built and was about to manufacture. He then approached Mr. Reade on the subject of a joint arrangement being worked out whereby the Ludlow Company would take over the manufacture and sale of the Elrod machine, and abandon the machine which Ludlow had developed. After full investigation and consideration, such an arrangement was entered into in July, 1920.

Some of the equipment of the small Elrod factory was moved to Chicago — the balance of it being scrapped. With superior manufacturing facilities, the Ludlow Typograph Company shortly perfected the manufacture of the Elrod machine and molds, and the Elrod Strip Caster soon became an important factor in composing room production.

The first Elrod machines built were exceedingly simple, with a very small number of moving parts, and, due

to the rightness of its principle for making printers' strip material, the Ludlow organization had no difficulty in building the machine so that its product was unquestionably accurate, solid and satisfactory, and its operation was simplicity itself. However, for some years, only machines with gas-heated crucibles were offered.

With the increasing use of electrically-heated crucibles on all kinds of composing room equipment, the demand for an Elrod machine with the crucible electrically-heated became insistent. In planning this forward step, however, the Ludlow Typograph Company re-studied every feature of Elrod design and operation.

The result of extensive research and experimentation was a completely redesigned Elrod, new and better in every particular, yet retaining however the cardinal virtue of pulling a continuous strip, free from brittle breaks or welds, through a mold from which air was entirely excluded. The Model E Elrod electrically-heated machine was announced to the trade early in 1929. This machine produces strip material in thickness from 1- to 18-points inclusive.

Soon thereafter, a machine with a still wider range of product was also announced. This was the Model F machine which casts strip material from 1-point to 36-points in thickness. Material in the latter size has proved ideal for use as base in newspaper composing rooms,

standing up perfectly under the most severe stereotyping pressure.

Soon after Elrods with electrically heated crucibles were brought out, the new Models E and F were made available with gas-heated crucibles, for those printers and publishers who preferred the latter fuel.

To reduce the weight of metal in strip material from 12-point to 36-point in thickness, cored molds were introduced.

The Elrod mold is made in a single integral unit without possibility of change or adjustment of any kind, and is responsible for much of the accuracy of the strip material produced.

One of the requirements of successful operation of the Elrod machine is to feed just the right amount of oil into the mold while strip is being produced. To insure this, with minimum attention on the part of the operator, a pressure mold lubricator was developed in 1930. The pressure forces the oil through an asbestos-packed diffusion tube at a uniform rate. From the diffusion tube, the oil emerges in a gaseous state and is taken up by, and intimately mixed with, the molten metal. As the metal is cooled in the mold, this oil gas condenses and becomes liquid, lubricating the inner walls of the mold and the surface of the strip material.